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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/075,310
Filing Date: February 14, 2002
Appellant(s): HABETHA, JOERG

Robert M. McDermott
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 02/15/2007 appealing from the Office action mailed 10/18/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6,671,284	**Yonge, III et al** [1]	**12-2003**
US 5,666,366	**Malek et al**	**09-1997**

[1] Please note that as the Appellant correctly pointed out that in the last two Office Actions **US Patent 6, 671, 284** was incorrectly associated with **Markwalter et al** and **US Patent 6, 671, 284** is actually listed to **Yonge, III et al**. However, in the US PTO-892 Form sent out with each Office Action, **US 6, 671, 284** is correctly listed to **Yonge, III et al** and **US 6, 577, 630** is also correctly listed to Markwalter et al. As the Appellant stated correctly Yonge's disclosure is essentially identical to Markwalter's disclosure and hence either references can be used without impacting the Examiner's Final rejection mailed on 10/18/2006. Therefore, for the purpose of this appeal, all references to Markwalter in the claim rejections included in the Final Office Action mailed on 10/18/2006 should be replaced with Yonge.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-19 are rejected under 35 U.S.C. as being unpatentable over Yonge, III et al US 6, 671, 284 (hereinafter referred to as Yonge) in view of Malek et al US 5, 666, 366, hereinafter referred to as Malek. This rejection is set forth in a prior Office Action, mailed on 10/18/2006. The Office Action that included the final rejections of all pending claims 1-19 mailed on 10/18/2006 is listed below for the convenience of the Board. All

references to Markwalter in the prior Office Action mailed on 10/18/2006 are now replaced with Yonge per explanation provided above for the convenience of the Board and does not constitute new grounds of rejection.

1. **Claims 1-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yonge et al (US 6, 671, 284), hereinafter referred to as Yonge, in view of Malek et al (US 5, 666, 366), hereinafter referred to as Malek.

Yonge discloses a self-configuring source-aware bridging for noisy media.

2. Regarding **claim 1**, *Yonge* discloses a network comprising a plurality of subnetworks which can each be connected via bridge terminals **(Figure 32 and Column 35, Lines 5-45)** and each include a controller **(Figure 2, element 76)** for controlling a sub-network **(Column 9, Lines 5-15)**.

3. Regarding **claim 7**, *Yonge* teaches a controller **(Figure 2, element 76)** in a subnetwork which can be connected to other subnetworks of a network via bridge terminals, the controller being provided - for controlling a subnetwork **(Column 9, Lines 5-15).**

4. Regarding **claims 8 and 10**, *Yonge* teaches a network, comprising:
a first centralized sub-network comprising a plurality of first terminals (**Fig. 32 elements 632a and 632b)**, each first terminal having an associated first controller, wherein one of the first controllers is a first central controller responsible for forming associated first medium access control (MAC) frames according to a first MAC frame structure for transmission in the first subnetwork **(Figure 32, elements 648a and 648c)**, and wherein one of the first

terminals is a first bridge **(Figure 32, element 644)** terminal for communication of the first MAC frames to another subnetwork; **(See also Column 35, Lines 5-40)** and

a second centralized sub-network comprising a plurality of second terminals **(Figure 32, elements 640a and 640b)** each second terminal having an associated second controller, wherein one of the second controllers is a second central controller responsible for forming associated second MAC frames **(See Figure 2)** according to a second MAC frame structure for transmission in the second subnetwork, and wherein one of the second terminals is a second bridge **(Figure 32, element 646)** terminal for communication of the second MAC frames to another sub-network.

5. Regarding **claim 17**, *Yonge* discloses a network, further comprising: a third centralized sub-network comprising a plurality of third terminals **(Figure 32, elements 636a and 636b)**, each third terminal having an associated third controller **(Column 8, Lines 29-31)**, wherein one of the third controllers is a central third controller responsible for forming associated third MAC frames **(See Figure 2)** according to a third MAC frame structure for transmission in the third sub-network, and wherein one of the third terminals is a third bridge terminal **(Figure 32, element 646)** for communication of the third MAC frames to another sub-network.

6. With respect to **claims 1, 7, 8, 10, and 17**, *Yonge* fails to disclose shifting the frame structure of its subnetwork to at least a frame structure of another sub-network.

Malek discloses frame-formatting technique for the purpose synchronizing frames on an inter-Base Station basis in a TDMA communication system.

Malek teaches shifting the frame structure of its sub-network **(i.e. any slave base station)** to at least a frame structure of another sub-network **(i.e. master base station)**. **(See Column 7, Lines 19-32 and Figure 5)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify *Yonge*'s apparatus to incorporate frame synchronization by shifting the frame structure of its sub-network to at least a frame structure of another sub-network. The motivation being using frame synchronization by shifting the frame decreases collision and interference and maximizes the use of the frequency spectrum as illustrated in Malek's Column 3, Line 6.

7. Regarding **claim 9**, *Yonge* _ teaches all aspects of the claimed invention as set forth in the rejection of claim 8, including a first controller, but fails to disclose displacing the first frame structure to the second frame structure by shifting the first frame structure to minimize a waiting time between the first frame structure and the second frame structure.

Malek discloses displacing the first frame structure to the second frame structure by shifting the first frame structure to minimize a waiting time between the first frame structure and the second frame structure. **(See Column 7, Lines 19-32 and Figure 5)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify *Yonge* apparatus to incorporate frame synchronization by displacing the first frame structure to the second frame structure by shifting the first frame structure to minimize a waiting time between the first frame structure and the second frame structure. The motivation being using frame synchronization by shifting

the frame decreases collision and interference and maximizes the use of the frequency spectrum as illustrated in Malek's Column 3, Line 6.

8. Regarding **claims 2-4 and 11-13**, *Yonge* teaches all aspects of the claimed invention as set forth in the rejection of claims 1 and 10, but fails to disclose a network with frame synchronization strategy, characterized in that a controller is provided for lengthening or shortening frames or for inserting an unused phase between successive frames up to a prescribed frame difference relative to the frame structure of the other subnetwork.

Malek teaches a network, characterized in that a controller is provided for lengthening or shortening frames **(See Figure 6, last two steps)** or for inserting an unused phase between successive frames up to a prescribed frame difference relative to the frame structure of the other subnetwork. **(See Column 7, Lines 19-40 and Column 8, Lines 17-35. See also Figures 6 and 7)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify *Yonge* 's apparatus to incorporate frame synchronization by shifting the frame wherein the frame shifting is achieved either by lengthening or shortening the frame size. The motivation being using frame synchronization by shifting the frame decreases collision and interference and maximizes the use of the frequency spectrum as illustrated in Malek's Column 3, Line 6.

9. Regarding **claim 5**, Yonge teaches all aspects of the claimed invention as set forth in the rejection of claim 1 but fails to disclose a network, characterized in that a

controller of a sub-network is provided for communicating with at least another controller of another sub-network regarding the type of shift.

Málek discloses a network, characterized in that a controller of a sub-network is provided for communicating with at least another controller of another sub-network regarding the type of shift. **(See Column 7, Lines 42-45)**

10. Regarding **claim 6**, Yonge teaches all aspects of the claimed invention as set forth in the rejection of claim 1 but fails to disclose discloses a network characterized in that a bridge terminal is provided for instructing the controllers of the sub-networks connecting them as to which controller is to carry out a shift and in which direction.

Malek discloses a network characterized in that a bridge terminal is provided for instructing the controllers of the sub-networks connecting them as to which controller is to carry out a shift and in which direction. **(See Column 7, Lines 42-45)**

11. With respect to **claims 5 and 6**, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Yonge's (should be replaced with Yonge's) apparatus to incorporate an indication as to which controller is to carry out a shift and in which direction. The motivation being using frame synchronization where the master base station indicates to the slave base stations to perform a shift in a given direction helps in minimizing collision and interference and maximizes the use of the frequency spectrum as illustrated in Malek's Column 3, Line 6.

12. Regarding **claim 14**, Yonge discloses a network, wherein the central first controller returns the duration of the first MAC frames to Tn after the synchronization. **(See Column 42, Lines 35-47 and Figure 39)**

13. Regarding **claim 15**, Yonge discloses the network, wherein the first bridge terminal is the second bridge terminal. **(See Figure 32, element 628 and 630)**

14. Regarding **claim 16**, Yonge discloses a network, wherein the central first controller is a first bridge controller of the first bridge terminal. **(See Figure 32, element 628 and 630)**

15. Regarding **claim 18**, Yonge discloses a network, wherein the first bridge terminal is the third bridge terminal. **(See Figure 32, element 628 and 630)**

16. Regarding **claim 19,** Yonge discloses a network, wherein the first bridge terminal is the second bridge terminal. **(See Figure 32, element 628 and 630)**

(10) Response to Argument

35 U.S.C. 103 (a) rejection of Claims 1-19 over Yonge and Malek

(a) *Argument:* Appellant argues in the Appeal Brief on page 5 that there is no suggestion in the prior art to combine Yonge and Malek. Appellant further argues that while Yonge teaches a network of bridged subnetworks, Malek only teaches a cell phone network and hence Malek does not teach bridged subnetwork and therefore Yonge cannot be combined with Malek. Appellant argues on pages 6 and 7 of the Appeal Brief that Malek does not teach bridged network. Appellant argues that Malek only teaches a technique for synchronizing the local base stations to a master base station so that when the mobile device switches from one base station to the next, the mobile device's signals are likely to be in sync with the next base station and cites Malek Column 2:2-62 as support. Appellant while appearing to admit in line 4 on page 7 of the Appeal Brief that Malek in fact teaches minimizing re-synchronization delay Appellant contends that Malek's teachings has no bearing on bridged network as taught

by Yonge. Appellant also appears to admit in lines 9-10 on page 7 of the Appeal Brief that Malek's teaching of minimizing re-synchronization delay effects a phase change of the frames but still Appellant strongly contends Malek's teachings is not applicable to a bridged network. Finally Appellant argues on page 7 of the Appeal Brief that Yonge does not teach or suggest that efficiencies can be achieved in a bridged network by shifting the frame structures of the subnetworks, and there is no suggestion in the prior art to apply the teachings of Malek for minimizing the resynchronization delay of mobile devices to a bridged network.

Examiner's Response: Examiner respectfully disagrees with Appellant's conclusions. Examiner respectfully notes that the basic requirements of a Prima Facie Case of Obviousness is clearly explained in MPEP 2143 and MPEP 2143 states for the record in this regard the following:

" To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)."

1st Criterion: In the Office Action mailed on 10/18/2006 the Examiner has provided an adequate motivation to combine Yonge with Malek and has provided a source for the motivation from the prior art. Namely the motivation to use Malek's unique technique of synchronization is simply to maximize the use of the frequency spectrum and decrease collision and interference as stated in Malek 3:6-15. Malek's unique technique of synchronization maximizes use of the frequency spectrum because it minimizes re-synchronization delay as illustrated by Malek in the abstract and in Columns 2:50-55, 3:1-15, 7:19-32, and 8:18-35. The Appellant in line 4 on page 7 of the Appeal Brief maintains that Malek in fact teaches minimizing re-synchronization delay and the Appellant also maintains in lines 9-10 on page 7 of the Appeal Brief that Malek's teaching of minimizing re-synchronization delay effects a phase change of the frames effectively concurring with the Examiner's position that Malek's teachings indeed maximizes use of the frequency spectrum. Further more that efficient synchronization minimizes collision in any network that uses shared medium access of frequency and time as shown in Malek Column 2:44-54. Hence the Examiner has adequately met the first criterion for establishing a prima facie case of obviousness by citing a motivation in Malek, which is the secondary reference.

2nd Criterion: There is reasonable expectation of success from the combination of Yonge with Malek because both systems use the principle of TDMA and both systems apply synchronization techniques on TDMA networks. Further more, Malek's synchronization technique does not contradict with that of Yonge's synchronization as stated above Malek's system only minimizes re-synchronization delay. Malek's

synchronization principle is applied to a TDMA communication system that uses TDMA principle to exchange frames between base stations in the system. In fact a close examination of the Appellant's specification on page 4, Lines 28-34, clearly shows that the Appellant also uses the same TDMA method used in Malek's system. In fact a base station with all of its associated terminals in a given cell establishes a subnetwork and has a unique carrier frequency in Malek's system just like each subnetwork in the Appellant's system has a unique carrier frequency. Based on the definition of subnetwork provided by the Appellant on page 4, Lines 28-34 in Malek's system each slave base station with all the mobiles in the cell associated with the base station is a subnetwork wherein the slave base station acts as a controller. The master base station that facilitates interconnection between the slave base stations in terms of synchronization and exchange of data is viewed as a bridge. Therefore, Examiner has adequately met the second criterion for establishing a prima facie case of obviousness by stating why the combination of Yonge with Malek will result in a reasonable expectation of success.

Since MPEP 2143 requires that a reasonable of success must be found in the prior art, Examiner points out that Malek teaches in Column 8:65-67 to Column 9:1-6 his unique method minimizing re-synchronization delay is applicable virtually to all communication systems that use frames with guard bits and Yonge's system indeed uses frames with guard bits as it is also a TDMA system as further illustrated in Yonge's Figure 38 and Column 42:15-20. It should be noted that all TDMA frames have guard bits that are optionally used to minimize interference between data bursts.

3rd Criterion: It is the position of the Examiner that the prior art reference (or references when combined) teaches or suggests all the claim limitations. Yonge as the primary reference adequately teaches the claimed physical structure of all the independent claims 1, 7, and 10, which is namely a bridged subnetwork, and adequately discusses the need for synchronization in the entire network. Appellant does not appear to be contesting whether Yonge teaches a bridged subnetwork but focuses on whether the bridge taught by Yonge is conventional or not. Since the claims do not require the bridges in the subnetwork to be non-conventional the issue raised by the Appellant in this regard is irrelevant. Malek as a secondary reference adequately teaches shifting or displacing frame structure of one subnetwork with respect to another subnetwork. Therefore, Examiner has adequately met the third and last criterion for establishing a prima facie case of obviousness by clearly showing the combination of Yonge and Malek teach or suggest all the claim limitations as detailed in the "Grounds of Rejection" section of the instant Examiner's Answer.

Since all three basic criteria for establishing a prima facie case of obviousness have been met in accordance with MPEP 2143, the combination of Yonge with Malek is proper. Thus, claims 1-19 stand properly rejected under 35 USC 103(a) over Yonge et al and Malek et al.

Examiner also respectfully disagrees with Appellant's position that Malek's teaching of synchronization does not apply to bridged networks. Malek unequivocally states that his teaching of synchronization is applicable to other communication systems as stated in Malek Column 9:1-5. One such system he lists as relevant is the FDDI

(Fiber Distributed Data Interface – a fiber optic LAN that is used to join LANs together and certainly results in a bridged network – see Newton's Telecom Dictionary 16th edition, page 336).

However, what is most significant about Malek's teachings is that it addresses the claimed limitation in the independent claims of 1, 7, and 10 that states "shifting the frame structure of its subnetwork to at least another subnetwork". The Appellant teaches in the specification on page 7, Lines 16-21 and on page 8, lines 11-14 that shifting a frame structure simply means that some portion of the standard MAC frame is added or dropped to minimize waiting time between the end of synchronization with the subnetwork and beginning of new MAC frame of the subnetwork. Malek exactly teaches the claimed limitation in that to re-sync the frame of one subnetwork (i.e. Master base station) to that of a frame of a second subnetwork (i.e. any of the slave base station) the slave base station slides the frame structure by shortening or lengthening the TDMA frame as stated in Column 7, Lines 19-32 and as shown in Figures 5 and 6. Given that Malek has clearly taught that the frame structure is indeed shifted for synchronization purposes then the relevant question is that can one see a base station and terminals associated with the base station as a subnetwork. The answer to the question raised earlier is affirmative since by definition a sub-network is a collection of OSI end systems and intermediate systems under the control of a single network access protocol. (Please refer to Newton's Telecom Dictionary, 16th Edition, on Page 809) Given such a definition and recalling that each base station has mobile terminals in its network where the mobile terminals can be considered as end systems

and the single network access protocol is TDMA and the base station providing a single network access. Hence clearly based on the definition provided each base station along with the mobile stations registered with the base station constitutes a subnetwork. Further, based on such a definition the communication between the master base station and the slave base station is a communication between subnetworks.

Clearly the Appellant in line 4 on page 7 of the Appeal Brief maintains that Malek in fact teaches minimizing re-synchronization delay and the Appellant also maintains in lines 9-10 on page 7 of the Appeal Brief that Malek's teaching of minimizing re-synchronization delay effects a phase change of the frames effectively concurring with the Examiner that Malek in some form or shape teaches the claimed limitation of shifting a frame structure between different base stations.

Finally, Examiner disagrees with Appellant's position that the primary reference, Yonge, needs to explicitly teach or suggest that efficiencies can be achieved in a bridged network by shifting the frame structures of the subnetworks, and there is no suggestion in the prior art to apply the teachings of Malek. The primary reference, Yonge, is introduced to teach the structure of what is claimed in the independent claims 1, 7, and 10 which is namely a bridged subnetworks and adequately discusses the need for synchronization in the entire network. The secondary reference, Malek, is introduced to teach the claimed limitation found in independent claims 1, 7, and 10 which is shifting the frame structures of the subnetworks. The motivation to combine Yonge with Malek need not come from Yonge and the motivation can be drawn from Malek. In fact Examiners motivation to combine Yonge with Malek was drawn from

Malek's Column 3:6-15 and the benefit from using Malek's synchronization technique allows maximum use of the frequency spectrum and decrease collision and interference.

(b) *Argument*: Appellant argues in the Appeal brief on page 6 that the bridge taught by Yonge is a conventional bridge because it uses different ports to connect to different subnetworks and cites Figures 27A-27B to indicate that the forwarding process incurs a significant delay because acknowledgement of receipt of the message forwarded does not occur until the end of the frame. Appellant goes on to indicate that the conventional synchronization of the bridged network taught by Yonge has a non-zero switchover time and therefore degrades the performance of the network by forcing a full frame period of delay to effect each transfer. The Appellant concludes that the subnetworks of a conventional bridged network are not synchronized.

Examiner's Response: Examiner respectfully disagrees with Appellant's conclusions. Appellant's arguments whether correct or incorrect are irrelevant due to the simple fact that a simple bridge without specifying whether it is conventional or not is claimed in all the relevant claims including independent claims 1, 7, and 10. The issue that the bridge is connected to the different subnetworks using different ports is still irrelevant as it is not a claimed feature. Further the fact that Yonge's forwarding process is delayed because it requires acknowledgment of receipt of forwarded messages is still irrelevant as it is not a claimed feature and besides it is a feature that deals with guaranteed error free transmission and has no relation with synchronization issues. In fact Figure 27 as illustrated by Yonge in Column 20:34-37 clearly shows that

it is dealing with Acknowledgment Request (ARQ) protocol with using ACK and NACK messages and has nothing to do with synchronization or frame structure shifting. Examiner would like to emphasize that ARQ protocol does not at all interfere with synchronization process. Synchronization occurs at the initial state when a station like the bridge joins the subnetwork. Once the bridge or new station synchronizes with the subnetwork then the system will institute ARQ protocol. After the bridge or new station synchronizes with the subnetwork then the bridge and each substation transmits based on their allotted time slot. Appellant in lines 7-13 on page 6 of the Appeal Brief implies synchronization is impacted because each station and the bridge has to wait for an acknowledgment message before joining the new subnetwork. However, the bridge or a new station joining the subnetwork has to first synchronize to the subnetwork like the Appellant's system then the bridge/new station starts sending frames to the subnetwork in its allotted time slot and then the ARQ protocol kicks in requiring the receipt of an Ack message. Therefore, given the fact that ARQ protocol is a process that occurs after synchronization the Appellant's discussion on ARQ protocol mentioned in lines 7-13 on page 6 of the Appeal Brief is irrelevant and cannot be sufficient reason to categorize Yonge's system as asynchronous and most importantly is not within the scope of the claimed limitations. Appellant also indicates Yonge having a non-zero switchover time as a major drawback to differentiate Yonge's bridge with Appellant's bridge as indicated in line 10 of page 6 of the Appeal Brief. However, the same drawback of having a non-zero switchover time is applicable to the Appellant's bridge as indicated in the Appellant's specification on page 1, lines 16-17, page 6, lines 25-28, and page 7, lines

5-13. The Appellant's system has a switchover time but like Malek's system it minimizes the waiting time associated with the start of the MAC frame related to the subnetwork newly synchronized with the bridge. Last but not least is the statement by the Appellant indicating conventional bridged network are not synchronized is merely the Appellant's assumption and the simple fact is that like the Appellant's system the bridge has to synchronize with each of the subnetwork it talks to in Yonge's system. Of course in Yonge's system there is a delay in synchronization in that there will be a wait time till the start of the new MAC frame of the subnetwork the bridge is trying to talk to but this drawback is easily rectified using Malek's unique synchronization techniques.

(c) *Argument*: Appellant argues on page 8 of the Appeal Brief that Malek teaches a conventional synchronization of devices, wherein the same sync frame pulse is used in all of the devices to initiate each frame. Appellant further argues that if one applies Malek's teachings to Yonge, the performance of the combined system will, in general, be degraded compared to Yonge's asynchronous design. According to the Appellant if the subnetworks of a bridged subnetwork are synchronized using the teachings of Malek so that the frame pointers of each subnetwork occur at the same time, a full frame length after receipt of the message will always be required before the message can be transferred to the other subnetwork.

Examiner's Response: Examiner respectfully disagrees with Appellant's conclusions. Appellant argument that the same sync frame pulse is used in all of the devices to initiate each frame is again irrelevant because it is not a claimed limitation. What is claimed again at the minimum in the independent claims 1, 7, and 10 is simply

shifting the frame structures of the subnetworks. If the shifting of the frame structure is based on a reference synchronous frame pulse (i.e. like Malek's system) or using a predefined and predetermined frame difference (i.e. like the Appellant's system – see specification in line 27 on page 1) still teaches shifting the frame structures of the subnetworks and adequately meets the claimed limitation.

Examiner also respectfully disagrees with Appellant arguments that if one applies Malek's teachings to Yonge, the performance of the combined system will, in general, be degraded compared to Yonge's asynchronous design. Appellant's system to a certain extent can be considered asynchronous because at any given moment a bridge connecting two subnetworks is synchronized with one subnetwork and the remaining subnetwork is no longer in sync with the bridge causing to be labeled asynchronous. Appellant has not pointed out any citation in Yonge reference why Yonge's design can be considered asynchronous. It is a fully synchronous design as frames are forwarded from a first subnetwork to a second subnetwork the bridge synchronizes the forwarded frames from the first subnetwork to the second subnetwork with the frame structure of the second network as indicated in Columns 3:25-60, 39:50-67, 40:1-30 and 41:35-45. Indeed Yonge's method of synchronization does not involve frame structure shifting and hence after the bridge synchronizes with the second subnetwork the waiting time for the start of the second subnetwork frames is not minimized. However if one applies Malek's synchronization techniques that involve frame shifting then the waiting time is obviously minimized.

Examiner also disagrees with Appellant's conclusion in indicating the combination of Yonge with Malek results in a drawback with the frame pointers of each subnetwork occur at the same time. First the issue is irrelevant as it has to do with how frames are stored in the buffers (Please see Malek Column 9:6) and second it is not recited in any of the claims 1-19. Also the issue of a full frame length after receipt of the message will always be required before the message can be transferred to the other subnetwork is irrelevant as it is an additional capability of Yonge dealing with error free transmission using ARQ protocol and has no bearing on synchronization of subnetworks.

In conclusion, Examiner has shown that the combination of Yonge as modified by Malek taught all claim limitations as recited in claims 1-19. Therefore for the above stated reasons the rejections of claims 1-19 under 35 U.S.C. 103(a) as being unpatentable over Yonge in view of Malek is maintained.

Claim 4

Argument: Appellant argues that the combination of Yonge and Malek fails to teach the claimed limitation of a controller of a first subnetwork is provided for shortening frames, and at least a controller of another subnetwork is provided for lengthening frames or for inserting an unused phase between successive frames up to a prescribed frame difference of the frame structures of the two subnetworks. Appellant further argues the combination of Yonge and Malek does not teach defining a prescribed frame

difference and correspondingly shortening frames in one subnetwork while lengthening the frames in another up to this prescribed difference.

Examiner's Response: Examiner respectfully disagrees with Appellant's conclusions. Given that the primary reference teaches the bridged subnetworks, Malek still teaches shifting the frame structures by either lengthening or shortening the frame as shown in the last two steps of Figure 6 and in Columns 7:19-40 and 8:17-35. See also Figure 7. The Appellant system has a prescribed frame difference while Malek's system determines at any given moment the frame structure difference between the master base station and the slave base station dynamically. Indeed Malek's system determines frame structure difference and Malek's system is more robust as it does not rely on a static prescribed frame difference of the frame structure. The important point here is realizing that in Malek's system the frame structure difference is determined and stored until the next synchronization update. Of course needless to say that the frame structure of some slave base stations will be shortened while frame structure of other base stations are lengthened while synchronizing with the master base station. Technically speaking one of ordinary skill in the art will realize whether removing or adding unused guard bits to shorten or lengthen the frame is identical step to that of the Appellant's removing or inserting unused phase in the frame. (Note that Uplink and Downlink Phases in the MAC frame are simply bits like guard bits that are not always used)

Therefore it is the position of the Examiner that all aspects of claim 4 are adequately taught by the combination of Yonge and Malek.

Claim 5

Argument: Appellant argues the combination of Yonge and Malek fails to disclose a controller of a subnetwork that is provided for communicating with at least another controller of another subnetwork regarding the type of shift.

Examiner's Response: Examiner respectfully disagrees with Appellant's conclusions. First it should be noted that based on the support provided in the Appellant's specification on page 7 in lines 19-22 and on page 8 lines 11-15, type of shift simply means indicating whether the MAC frame structure should be lengthened or shortened. Given that the bridged subnetwork is taught by Yonge, Malek indeed shows in Figure 6 that the slave base station receives a sync signal and based on the sync signal as shown in Figure 6 the slave base station can determine the type of the shift whether to lengthen or shorten the frame as illustrated in Column 7:40-50.

Therefore it is the position of the Examiner that all aspects of claim 5 are adequately taught by the combination of Yonge and Malek.

Claim 6

Argument: Appellant argues the combination of Yonge and Malek fails to disclose a bridge terminal that is provided for instructing the controllers of the subnetworks connecting them as to which controller is to carry out a shift and in which direction.

Examiner's Response: Examiner respectfully disagrees with Appellant's conclusions. First it should be noted again that based on the support provided in the Appellant's specification on page 7 in lines 19-22 and on page 8 lines 11-15, type of shift simply means indicating whether the MAC frame structure should be lengthened or shortened. Second, as best as the Examiner can understand from the support given in the Appellant's specification on page 9, in lines 4-6 and 9-11 still direction of shift means or boils down to whether the MAC frame structure should be lengthened or shortened. Given that Yonge teaches the bridged subnetwork, Malek indeed shows in Figure 6 that the slave base station receives a sync signal and based on the sync signal as shown in Figure 6 the slave base station can determine the type of the shift whether to lengthen or shorten the frame as illustrated in Column 7:40-50 as directed by the master base station that sent the sync signal. Of course the master base station is assuming the role of the bridge terminal and the slave base stations taking the role of the subnetwork controllers.

Therefore it is the position of the Examiner that all aspects of claim 6 are adequately taught by the combination of Yonge and Malek.

Claims 11 and 12

Argument: Appellant argues the combination of Yonge and Malek fails to teach all aspects of claims 11 and 12 but in particular cannot be said to teach inserting an unused phase corresponding to such switchover time. Appellant further argues that Yonge is silent on switch over time.

Examiner's Response: Examiner respectfully disagrees with Appellant's conclusions. At the minimum the Appellant indicates that on page 6 of the Appeal Brief in lines 5-12 that Yonge's bridge is a conventional bridge and specifically in line 10 on page 6 Appellant acknowledges that a non-zero switchover time exists for conventional bridges like Yonge. Even though Yonge is silent on switch overtime, any bridge communicating with subnetwork 1 will have to incur a switchover time to start communicating with subnetwork2. Applying Malek's principle of lengthening a frame by adding unused bits in the frame structure, as indicated in the last two steps of Figure 6 and in Columns 7:19-40 and 8:17-35, it is obvious to increase subnetwork2 frame to compensate for the switchover time resulting from the bridge switching from subnetwork1 to subnetwork2. How the Appellant used the unused phase in the Appellant's MAC frame to lengthen the or shorten the MAC frame is identical to Malek's use of guard bits to lengthen or shorten the TDMA frames. The unused phases to be inserted in the MAC are simply unused bits in a MAC frame in the HIPERLAN/2 protocol and are functionally equivalent to the guard bits found in the frames of Malek's system.

Therefore it is the position of the Examiner that all aspects of claims 11 and 12 are adequately taught by the combination of Yonge and Malek.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Habte Mered

Habte Mered

Examiner

Art Unit 2616

HM

June 4, 2007

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